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PART III

DEPARTMENT OF TRANSPORTATION

Coast Guard

■

CERTAIN BULK DANGEROUS CARGOES

SPECIAL INTERIM REGULATIONS FOR ISSUANCE OF LETTERS OF COMPLIANCE

Title 46—Shipping

CHAPTER I—COAST GUARD, DEPARTMENT OF TRANSPORTATION

[CGD 72-80R]

SUBCHAPTER O—CERTAIN BULK DANGEROUS CARGOES

PART 154—SPECIAL INTERIM REGULATIONS FOR ISSUANCE OF LETTERS OF COMPLIANCE

The purpose of the amendments in this document is to add to subchapter O of title 46, Code of Federal Regulations, interim regulations governing the issuance of a letter of compliance to foreign vessels carrying certain bulk dangerous cargoes in U.S. ports. This interim regulation is an upgrading and a continuation of the philosophy and procedures outlined in "Navigation and Vessel Inspection," Circular 13-65, dated September 30, 1965.

Since the interim regulations in this document concern rules governing the Coast Guard's procedure and practice, they are exempt from notice and public procedure thereon by 5 U.S.C. 553(b)(3)(A). Since the interim regulations impose no additional burdens on any person, they may be made effective in less than 30 days in accordance with 5 U.S.C. 553(d).

In consideration of the foregoing, subchapter O of title 46, Code of Federal Regulations, is amended by adding the special interim regulations for issuance of letters of compliance to read as follows:

[SCGR-150]

1. Purpose.
2. Background.
3. Discussion.
4. Action.

Annex A—Bulk liquid cargoes considered to involve potential unusual operating risks to life and property in U.S. ports.

Annex B—Liquid cargoes not considered to involve potential unusual operating risks to life and property in U.S. ports.

1. *Purpose.*—The purpose of this interim regulation is to prescribe procedures for the issuance of a letter of compliance to foreign vessels carrying certain bulk dangerous cargoes which create potential unusual operating risks to life and property in U.S. ports. These unusual operating risks may be by virtue of the vessel design, the vessel operation, or the cargoes carried. These interim regulations require a letter of compliance for foreign vessels carrying, in U.S. ports, any of the cargoes listed in table I of these regulations.

The ever-increasing number and quantity of hazardous cargoes being shipped in bulk, mainly on foreign vessels, has been determined by the Coast Guard to present an unacceptable level of risk to U.S. ports. Pending the adoption of a satisfactory international standard of construction and manning, the United States must insure a minimum degree of safety from all vessels carrying hazardous cargoes in U.S. waters. It is anticipated that upon the adoption of a satisfactory international standard, such as an acceptable IMCO code, vessels constructed to such standard will be considered to meet the minimum degree of safety desired.

A letter of compliance, valid for 2 years, will be issued to vessels upon satisfactory completion of plan review and examination. The requirements for the carriage of cargoes which previously required a letter of compliance are effective immediately. The requirements for carriage of cargoes which did not previously require a letter of compliance will be effective on January 1, 1974.

Letters of compliance are valid for a period of 2 years. Letters of compliance issued prior to 1972 will remain in effect for 1 year following the issue date of this regulation. Reissuance of a vessel's letter of compliance will require a satisfactory Coast Guard reexamination.

2. *Background.*—Prior to 1965, the carriage of dangerous cargoes by water was minimal, with foreign vessels being allowed entry without regard to technical requirements for the safety and security of U.S. ports. With the expansion of the chemical industry and chemical shipments by water, the carriage of certain dangerous cargoes was determined to present potential unusual operating risks to U.S. ports. Since there was no recognized international standard for the design and construction of the cargo containment portion of vessels, the United States promulgated regulations permitting some control for the assurance of port safety.

Under the provisions of 46 CFR 2.01-13, foreign vessels involving novel features of design or construction upon which the Convention for the Safety of Life at Sea is silent, or which involve potential unusual operating risks, are subject to inspection to the extent necessary to safeguard life and property in U.S. ports. The control and movement of such vessels in U.S. waters are also subject to the jurisdiction of the U.S. Coast Guard captain of the port pursuant to the authority of 33 CFR, part 6 and in accordance with 33 CFR, part 124. Foreign vessel operators were informed of requirements and procedures by "Navigation and Vessel Inspection," Circular No. 13-65 dated September 30, 1965.

The complex nature of U.S. regulations has made them very difficult for foreign operators to use and understand. Requirements for the review of cargo containment portions of vessels are found in various subparts of subchapter D (Tank Vessel Regulations), subchapter F (Marine Engineering Regulations), subchapter J (Electrical Regulations), subchapter I (Cargo and Miscellaneous Vessel Regulations), and subchapter O (Certain Bulk Dangerous Cargo Regulations).

It has been found necessary to promulgate interim regulations to explain to foreign vessel owners the present submission procedure for the review of the cargo containment portions of their vessels. These interim regulations will also provide reference to the U.S. regulations that apply to the cargo containment portion of such vessels.

It is contemplated that as acceptable international standards for the cargo containment portions of vessels are developed and implemented, the Coast Guard will accept certification from the national administrations for those vessels in full compliance with such international standards.

3. *Discussion.*—(a) *Unusual risks.*—A potential unusual operating risk may exist because of the design of the vessel, the cargoes carried, the method of handling the cargo, or any unconventional shipboard system. A "design" is not considered restricted to construction details, but is considered to include the overall concept of the carriage of the cargo. For example, a vessel designed for the low temperature carriage of cargoes creates an unusual risk because the uncontrolled release of cargo can cause brittle fracture of the surrounding structure. Also, a vessel of conventional design could pose a hazard when carrying a product not considered when the vessel was built. Additionally, a new or unusual handling technique for a common product could create a hazard.

In considering safeguards necessary to permit the movement of these cargoes in bulk, all aspects of the overall transportation concept must be considered. This includes intended routes, navigational considerations, vessel design features, method of cargo handling, and the shore facilities available.

(b) *Cargoes considered to involve unusual risks.*—(1) Types of cargoes which are considered to involve potential unusual operating risks include:

(i) Highly reactive or unstable commodities;

(ii) Commodities having severe and unusual fire hazards, such as liquefied flammable gases;

(iii) Commodities having toxic properties;

(iv) Commodities requiring refrigeration or pressurization for their safe containment;

(v) Commodities which can cause brittle fracture of normal temperature materials by reason of their being carried at low temperature or because of their low boiling point at atmospheric pressure;

(vi) Corrosive commodities.

(2) The cargoes which have been determined to meet the above criteria are listed in annex A. Foreign vessels loading, discharging, or carrying these cargoes in U.S. ports require a letter of compliance.

(3) Cargoes considered not to involve potential unusual operating risks in bulk transportation are found in annex B. Vessels loading, discharging, or carrying only those cargoes listed in annex B are not subject to the procedures explained herein.

(4) Any cargo which is intended for carriage and which does not appear in either annex A or annex B is subject to an individual determination by the Commandant (GMHM). The shipper must first notify the Coast Guard of his intention to carry any such cargo. Based on a review of the cargo's hazards, it will be assigned to either annex A or annex B. Requirements will be developed for a cargo assigned to annex A and the vessel will then be reviewed on the basis of those requirements.

(c) *Features of interest to the Coast Guard.*—The following are examples of the type of features in which the Coast Guard is interested from the point of view of safety of life and property in U.S. ports:

(1) Design and arrangement of cargo tanks and cargo piping and vent systems. (Including the suitability of the cargo containment system materials for the pressure and temperatures involved, welder and welding procedure qualification, and nondestructive testing of the cargo tanks and piping.)

(2) Arrangement and adequacy of installed fire extinguishing system and equipment.

(3) Safety devices and related systems which check the cargo and the surrounding spaces to give warning of leaks or other disorders which could result in a casualty.

(4) Isolation of toxic cargoes.

(5) Compatibility of one cargo with another and with the materials of the containment system.

(6) Suitability of electrical equipment installed in hazardous areas.

4. *Action*—(a) *Foreign vessel owner.*—(1) Owners desiring to carry cargoes which exhibit a potential unusual operating risk to U.S. ports must submit a formal request to the Commandant (GMHM) for a review of the cargo containment portion of the vessel. This request must include:

(i) A list of all cargoes to be carried which do not appear in the list in annex B.

(ii) The anticipated routes of the vessel.

(iii) Country of vessel registry.

(iv) Classification society.

(v) A description of the cargo containment system.

(2) Plan review information must be submitted as specified in annex A.

(i) For existing vessels, required information must be submitted in the English language and received at least 90 days prior to desired entry into U.S. ports.

(ii) In the case of new construction or conversion, sufficient lead time should be provided to allow for review, comment, and any necessary revision to insure compliance with U.S. Coast Guard requirements prior to desired entry into U.S. ports.

(3) Owners and charterers should consider that vessels which have not completed plan review, and which arrive at a U.S. port with cargo on board requiring a letter of compliance, will be ordered to depart U.S. territorial waters until outstanding review items and vessel discrepancies have been resolved Furthermore, vessels arriving at a U.S. port in an empty condition will not be permitted to load cargo requiring a letter of compliance until plan review and initial examination are satisfactorily completed.

(b) *Plan Review—U.S. Coast Guard.*—(1) The required plans and specifications will be reviewed using criteria equivalent to those used in the review of a similar design for U.S. registry.

(i) Review of existing vessels will be based upon those plans required for individual cargoes as specified in annex A. For cargoes not previously requiring a letter of compliance, consideration will be given to standards in effect at the time of construction in order that major modifications to the cargo containment portion of the vessel would not be required.

(ii) Plan review for new construction will be considered complete after plans, specifications, and inspection and test reports have been found satisfactory and evidence has been received that the vessel will be accepted by a recognized classification society. Normally, when foreign equipment and material standards provide the same degree of safety as comparable U.S. standards, they will be accepted in lieu of requiring approved items of equipment and materials from U.S. manufacturers.

(2) Arrangements have been made with certain classification societies to further streamline the plan review of various systems, components, and test data for liquefied flammable gas vessels. These procedures may be used if desired. Because the arrangements differ from society to society, specific details should be obtained directly from the society classing the vessel.

(3) Owners of vessels complying with the IMCO Code for the Construction and Equipment of Ships Carrying Dangerous Chemical in Bulk, Resolution A.212 (VII), may submit certification of compliance from their national administration in lieu of plans and drawings. Following Coast Guard review of such certifications, the owners will be advised of any additional plans and drawings needed for review. In general, a new vessel built in full compliance with the IMCO Code will not require plan review. A vessel which only partially meets the IMCO Code requires additional plan review.

(4) The Coast Guard does not conduct examinations in foreign building yards for the purpose of issuance of letters of compliance. For vessels under construction or alteration, it is the responsibility of the vessel owner to incorporate all requirements made by the Coast Guard during plan review. Required reports of examinations or tests must be certified by the vessel's classification society. The owner must make arrangements with the classification society for the examination and submission of the English copies of the reports and certificates. All submissions should be sent from one central agency, the owner or owner's representative, rather than directly from all manufacturers involved in construction.

(5) Upon completion of plan review, the Commandant (GMHM) will notify the owner that plan review is complete and specify the cargoes authorized for carriage and the applicable restrictions. The owner may then send his vessel carrying an authorized cargo, to a U.S. port for examination.

(c) *Notification of arrival—foreign vessel owner.*—(1) When plan review has been completed for a vessel, the owner or charterer must notify the Commandant (GMHM) and the cognizant captain of the port or officer-in-charge of marine inspection of the date and place of the vessel's initial arrival. See 33, Code of Federal Regulations, part 3, for a listing of captains of the port and officers in charge of marine inspection. Notification must be given at least 2 weeks prior to the vessel's time of arrival. Any additional advance notice required by the captain of the port for specific cargoes must also be given.

(d) *Examination*—(1) *Initial examination.*—(i) Upon arrival at the first port of call in the United States, representatives of the cognizant captain of the port and officer in charge, marine inspection, will board the vessel. The Commandant may deem it necessary to have a headquarters representative attend as a member of the boarding party because of peculiarities in vessel design, cargo handling operations, or hazardous properties of the cargo.

(ii) For those vessels that have completed Coast Guard plan review, the boarding party will examine the vessel's arrangement and cargo system, including tanks, piping, machinery, and alarms. In addition, the boarding party will observe the material condition of the vessel, vessel operation, cargo handling operations, firefighting capability, and personnel performance. Cargo tanks will not be required to be gas free unless prior notification is given the owner by Commandant (GMHM).

(iii) For those vessels which fully meet the IMCO Chemical Code, a valid IMCO certificate in English must be available for examination by the boarding party. The boarding party will examine and observe the material condition of the vessel, vessel operation, cargo handling operations, vessel firefighting capability, and personnel performance.

(iv) Serious discrepancies, such as those involving inoperative safety equipment, leaking cargo piping or nonexplosion-proof electrical installations may require immediate correction prior to cargo transfer operations. Minor discrepancies may not preclude permission to transfer cargo, but may require correction prior to a second call in a U.S. port either on the initial voyage or on a subsequent voyage.

(2) *Reexamination.*—(i) Reexaminations are conducted biennially for vessels which hold a Coast Guard letter of compliance. The purpose of reexaminations is to insure that the vessel is being maintained to the safety and construction standards as initially examined. Vessels with letters of compliance issued prior to 1972 must be reexamined within 1 year of the date of these regulations. Vessels which have not been reexamined under the provisions outlined above will be denied the privileges afforded by the vessel's letter of compliance.

(ii) The vessel owner or charterer must make arrangements for a letter of compliance reexamination in accordance with paragraph 4(c), as he did for the initial examination.

(iii) The boarding party will examine and observe the material condition of the vessel, vessel operation, cargo handling operations, condition of firefighting and safety equipment, and personnel performance.

(iv) Paragraph 4(d)(1)(iv) outlines the procedures applying to vessel discrepancies found during reexaminations.

(3) *Boardings.*—(i) The condition of the vessel during subsequent arrivals in U.S. ports must be maintained to those standards set for the initial examination. Vessels may be boarded at the harbor entrance, and while en route to berth, underway tests and examinations of the firefighting equipment, leak detectors, quick closing valves, and other safety equipment may be conducted. Inoperative equipment may result in the vessel not being permitted to enter port or to conduct cargo operations. Failure of the owner to maintain the vessel to the general safety and construction standards, or reports by Coast Guard field units of improper or negligent cargo handling operations, as well as unreported modifications to the cargo system, may invalidate the letter of compliance. Reinstatement would be dependent upon evidence that the deficient equipment or cargo handling procedures were corrected to insure safe handling of applicable cargoes.

(e) *Master of vessel.*—(1) The master of the vessel must have all required SOLAS certificates and vessel plans required under these regulations available for the boarding party to use when examining the vessel. Vessel plans, in English, must include, but not be limited to, general cargo tank arrangement, cargo tank venting arrangement, cargo piping arrangements, and safety plans. Evidence of the set pressure of the safety relief valves must be available, preferably in the form of a classification society certificate. The master may be called upon to verify the set pressures stated on the certificate. For those vessels which have completed Coast Guard plan review, the plans provided should be duplicates of plans submitted to the Coast Guard. For vessels which are certificated under the IMCO code, a valid IMCO certificate, in English, must be presented.

(f) *Letter of compliance.*—(1) If the vessel meets all applicable requirements of these regulations, a letter of compliance will be issued by the Commandant (GM). The letter of compliance must be available for presentation to Coast Guard inspection parties whenever the vessel is boarded by Coast Guard personnel. The letter will indicate that the special cargo carrying and handling features of the vessel have been evaluated and found satisfactory for the cargoes specified. For subsequent vessel arrivals, the captain of the port, in conjunction with the officer in charge, marine inspection, will make such reexamination as he considers necessary to insure that the vessel has been maintained

as initially examined. This will be in addition to the regular biennial reexamination. Vessels which have a letter of compliance issued on the basis of an IMCO code certification must maintain a valid certificate.

Changes of vessel name, vessel owner, or vessel registry invalidate the letter of compliance and must be reported to Commandant (GMHM). Upon completion of a satisfactory reinspection a revised letter of compliance will be issued.

(g) *Cargo loading.*—(1) A loading diagram indicating all cargoes to be carried, loaded, or unloaded in U.S. ports must be available for captain of the port personnel at all ports of call in the United States. This loading diagram is in addition to, and not in place of the information required by 33 CFR, part 124.

(2) Cargo compatibility must be considered in preparing a loading diagram and in the subsequent cargo transfer operations. Proper safeguards against accidental mixing of reactive products would include consideration of such factors as avoidance of the use of common cargo and vent lines and carriage in adjacent tanks having a common bulkhead. Navigation and Vessel Inspection Circular No. 5-70 contains a "Guide to Compatibility of Chemicals." A copy of NVC 5-70 containing the guide will be enclosed with letters of compliance and letters notifying owners that plan review of their vessel is complete. Copies of NVC 5-70 are available from Commandant (GMHM) upon request.

(h) *Crew qualifications.*—(1) Since the Coast Guard has no direct control over the qualifications of the crew or the continued utilization of safe operational procedures, it is recommended that vessels be operated in accordance with internationally accepted operating standards such as International Chamber of Shipping Tanker Safety Guides, International Oil Tanker and Terminal Safety Guide, or similar guides.

ANNEX A

BULK LIQUID CARGOES CONSIDERED TO INVOLVE POTENTIAL UNUSUAL OPERATING RISKS TO LIFE AND PROPERTY IN U.S. PORTS

1. Vessels transporting the following commodities in bulk require plan review and examination in accordance with these interim regulations. The submissions to be reviewed will depend upon the cargoes to be carried. These submissions are referenced in table I of this annex.

TABLE I

Cargo	*For submissions, see paragraphs*
Acetaldehyde	3, 4, 7, 13.
Acetic acid	3, 7, 8, 9.
Acetic anhydride	3, 7, 8, 9.
Acetone cyanohydrin (stabilized).	
Acetonitrile	3, 7, 8, 9, 10, 11.
Acrolein	3, 7, 8, 10, 11, 13.
Acrylic acid (inhibited)	3, 7, 9.
Acrylonitrile (inhibited)	3, 7, 8, 9, 10, 11.
Adiponitrile	3, 7, 8.
Allyl alcohol	3, 7, 8, 10, 11.
Allyl chloride	3, 7, 8, 10, 11.
Aminoethylethanolamine	3, 7, 9.
Ammonia, anhydrous	3, 4, 5, 6, 7, 8.
Ammonium hydroxide (not to exceed 28% NH_3).	3, 7, 8, 9.
Aniline	3, 7, 8, 10, 11.
Benzene	3, 7, 8, 10, 11.
Benzene, toluene, xylene (crude).	3, 7.
Butadiene (inhibited)	3, 4, 5, 6, 7, 8.
Butane	3, 4, 5, 6, 7, 8.
Butene	3, 4, 5, 6, 7, 8.
Butyl acrylate (iso-, n-) (inhibited).	3, 7, 8.
Butylamine (iso-, n-, sec-, tert-).	3, 7, 9.
Butylene oxide	3, 7, 8, 9, 13.
Butyraldehyde (iso-, n-) (crude).	3, 7, 8.
Camphor oil	3, 7, 8.
Carbolic oil	3, 7, 8, 10, 11.
Carbon bisulfide	3, 8, 13, 14.
Carbon tetrachloride	3, 8, 10, 11.
Caustic potash solution	3, 9.
Caustic soda solution	3, 9.
Chlorobenzene	3, 7, 8.
Chloroform	3, 7, 8, 10, 11.
Chlorohydrins (crude)	3, 7, 8, 10, 11.
Chlorosulfonic acid	3, 8, 10, 11, 12.
Cresols (mixed isomers)	3, 7.
Crotonaldehyde	3, 7, 8, 10, 11.
Cyclohexanone	3, 7.
Decyl acrylate (inhibited) (iso-).	3, 7.
Dibutylamine	3, 7, 9.
Dichlorobenzene (ortho-)	3, 7, 9.
Dichlorodifluoromethane	3, 4, 6.
Dichloroethyl ether	3, 7, 9.
1,2-dichloropropane	3, 7, 8, 10, 11.
Dichloropropene	3, 7, 8, 10, 11.
Diethanolamine	3, 7, 9.
Diethylamine	3, 7, 9.
Diethylenetriamine	3, 7, 9.
Diisopropanolamine	3, 7, 9.
Diisopropylamine	3, 7, 9, 10, 11.
Dimethylamine	3, 4, 5, 7, 8.
Dimethylformamide	3, 7, 8, 9.
1,4-dioxane	3, 7.
Diphenyl-diphenyl oxide	3, 7.
Diphenyl methane diisocyanate.	3, 7, 9, 10, 11, 13.
Epichlorohydrin	3, 7, 8, 10, 11.
Ethane	3, 4, 5, 6, 7, 8.
Ethyl acrylate (inhibited)	3, 7, 8.
Ethylamine	3, 4, 7, 8, 13.
Ethyl chloride	3, 4, 7, 8.
Ethylene	3, 4, 5, 6, 7, 8.
Ethylene cyanohydrin	3, 7.
Ethylenediamine	3, 7, 8, 9.
Ethylene dibromide	3, 8, 10, 11.
Ethylene dichloride	3, 7, 8.
Ethylenimine	3, 7, 8, 9, 10, 11, 13.
Ethylene oxide	3, 4, 5, 7, 8, 11, 13.
Ethyl ether	3, 7, 8, 9, 13.
2-ethylhexyl acrylate (inhibited).	3, 7.
2-ethyl-3-propyl acrolein	3, 7, 8.
Formaldehyde solution (37-50%).	3, 7, 8.
Formic acid	3, 7, 8, 9.
Furfural	3, 7, 8, 9.
Hydrochloric acid	3, 8, 12.
Hydrofluoric acid	3, 8, 12.
Hydrogen chloride	3, 4, 6, 8.
Hydrogen fluoride	3, 4, 8.
2-hydroxyethyl acrylate (inhibited).	3, 7, 8, 10, 11.
Isoprene (inhibited)	3, 7, 8.
Methane	3, 4, 5, 6, 7, 8.
Methyl acetylene propadiene (mixture) (stabilized).	3, 4, 5, 6, 7, 8.
Methyl acrylate (inhibited)	3, 7, 8.
Methyl bromide	3, 4, 7, 10, 11.
Methyl chloride	3, 4, 5, 6, 7, 8.
Methylcyclopentadienyl manganese tricarbonyl.	3, 7, 8, 10, 11.
2-methyl-5-ethyl pyridine	3, 7, 9.
Methyl methacrylate (inhibited).	3, 7, 8.
Monochlorodifluoromethane	3, 4, 6.
Monoethanolamine	3, 7, 8, 9.
Monoisopropanolamine	3, 7, 8, 9.
Morpholine	3, 7, 8, 9.
Motor fuel antiknock compounds containing lead alkyls.	3, 7, 8, 10, 11.
Nitric acid	3, 8, 12.
Nitrobenzene	3, 7, 10, 11.
2-nitropropane	3, 7.
Nonyl phenol sulfide	3, 7.
Oleum	3, 8, 12.
Phenol	3, 7, 8, 10, 11.
Phosphoric acid	3, 12.
Phosphorus (elemental)	3, 10, 11.
Phthalic anhydride (molten).	3, 7.
Polymethylene polyphenyl isocyanate.	3, 7, 9, 13.
Propane	3, 4, 5, 6, 7, 8.
Propiolactone	3, 7, 10, 11.
Propionic acid	3, 7, 8, 9.
Propionic anhydride	3, 7, 9.
Propylamine (iso-)	3, 7, 9, 10, 11, 13.
Propylene	3, 4, 5, 6, 7, 8.
Propylene oxide	3, 7, 8, 9, 11, 13.
Pyridine	3, 7, 8, 9.
Styrene (inhibited)	3, 7, 8, 9.
Sulfur (molten)	3, 7, 8.
Sulfuric acid (includes spent).	3, 12.
Tetraethylene pentamine	3, 7, 9.
Toluene diisocyanate	3, 7, 8, 9, 10, 11, 13.
Triethanolamine	3, 7, 9.
Triethylamine	3, 7, 9.
Triethylene tetramine	3, 7, 9.
Vinyl acetate (inhibited)	3, 7, 8, 9.
Vinyl chloride (inhibited)	3, 4, 5, 6, 7, 8.
Vinylidene chloride (inhibited).	3, 7, 8, 9, 13.
Vinyl toluene (meta-, para-) (inhibited).	3, 7, 9.
Zinc dialkyldithiophosphate	3, 7.

2. The information (plans, specifications, certificates, etc.) described in the following paragraphs is required for the plan review of a vessel. Such information is intended as a guide to cover the required information for both liquid gas carriers and certain chemical carriers. Depending upon the service and design of a particular vessel, the Coast Guard may require more information than is included on the list. All information should be submitted in duplicate by the owner or builder of the vessel. The Coast Guard will retain one copy of the information. All information must be translated into English and supplied from one control agency, the owner, or the owner's representative rather than directly from all the manufacturers involved in construction.

Mail information to:

U.S. Coast Guard Headquarters (GMHM-1/83)
400 Seventh Street SW.
Washington, D.C. 20590

Detailed Coast Guard regulations for U.S.-flag vessels are contained in the Code of Federal Regulations, 46 CFR 1-65, 46 CFR 66-145, and 46 CFR 150-199. These volumes are revised each year and may be purchased from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

The requirements in the Code of Federal Regulations apply to U.S. vessels and are used as bases of comparison when reviewing a foreign vessel. Although special cases may require compliance with other portions of these regulations, the most pertinent sections are outlined in table II.

TABLE II.—*Plan review requirements. Applicable subparts of 46 code of federal regulations*

	General	Cargo tanks	Piping, valves	Venting and ventilation	Pressure relief devices	Electrical installation	Safety equipment
General		32.60	32.50	32.55	32.20-5	31.35-1	34.01-10
			56	56.50-20	54.15	32.45	
					162.017	111.80-5	
					162.018	111.80-8	
						111.85	
Liquefied	38	38.05	38.10	38.20	38.10-15	38.15-15	38.15-10
Flammable		54.01		38.15-1		38.15-20	
Gas		54.25					
		54.30					
Anhydrous	98.25	98.25-10	98.25-40	98.25-70	98.25-60		
Ammonia		98.25-20	98.25-55				
Propylene	40.10	40.10-10	40.10-40	40.10-69	40.10-60		40.10-83
Oxide			40.10-55	40.10-73			
Ethylene	40.05	40.05-10	40.05-40	40.05-69	40.05-60		40.05-83
Oxide			40.05-55	40.05-73			
Sulfuric	98.10	98.10-10	98.10-30	98.10-10(b)			
Acid		98.10-15		98.10-15, (d), (e)			
Phosphoric	98.18	98.18-10	98.18-30	98.18-10(b)			
Acid		98.18-15		98.18-15 (c), (d)			
Hydrochloric	98.15	98.15-10	98.15-30	98.15-10(b)			
Acid		98.15-15		98.15-15 (d), (e)			
Toxic	39	39.05	39.10	39.20	39.20-1		
Cargoes							

NOTE.—Special requirements for low-temperature operation (below 0° F) are contained in subchapter F of title 46, Code of Federal Regulations. These requirements incorporate those of NVC 6-67, which has been withdrawn. The applicable sections are as follows:

(1) Materials for low temperature operation: 46 CFR 54.25-10, 54.25-15, and 54.25-20.

(2) Toughness testing for low-temperature operation: 46 CFR 54.03 and 54.05.

(3) Welding for low-temperature operation: 46 CFR 57.02.

(a) Procedure qualification: 46 CFR 57.03 and 54.05.

(b) Production testing: 46 CFR 57.06 and 54.05.

(4) Low temperature piping: 46 CFR 56.50-105.

(a) Flange joints: 46 CFR 56.30-10.

(b) Welding: 46 CFR 56.70-15.

3. The owner, or owner's representative, of vessels intended to carry cargoes listed in this annex must submit the following:

(a) Written description of the vessel including general design features, cargoes to be carried, design conditions of cargo carriage registry and classification.

(b) (1) General arrangement;

(2) Inboard and outboard profiles;

(3) Midship sections.

(c) Venting (tanks and holds).

(1) Pressure and vacuum setting for pressure vacuum valves;

(2) Calculations which show the required capacity for safety relief valves or pressure relief valves;

(3) Description of means of cargo tank vacuum protection; and

(4) Arrangement of vent piping to atmosphere (including relief valves in pipe runs and flame screen specifications).

(d) Cargo handling.

(1) Cargo piping diagram;

(2) Arrangement of cargo piping on deck and in the tanks;

(3) Arrangement of machinery in motor, compressor, and control rooms;

(4) Piping diagram of reliquefaction/refrigeration system (if installed);

(5) Reliquefaction/refrigeration system components and materials (if installed);

(6) Operations manual for cargo handling system.

(e) Cargo tank gaging systems—liquid level, temperature, and pressure.

NOTE.—The information describing tank gaging systems must include a description of each component (i.e., sensor, transducer, and readout).

(f) Safety plan.

(g) Detailed plans of the fire protection systems serving cargo handling areas and other spaces of unusual hazard.

4. For vessels intended to carry cargoes listed in this annex which reference paragraph 4, the owner or owner's representative must submit:

(a) Base materials.

(1) Translated copies of specifications for all grades of material used in the cargo tanks and hull structure other than normal hull quality steel. Copies of specifications for materials conforming to American Society for Testing and Materials (ASTM) or American Bureau of Shipping (ABS) standards need not be submitted.

(2) Mill certificates or classification society certificates which show the chemistry and the mechanical properties including impact testing, where necessary for all base materials used in actual construction of cargo tanks.

(b) Cargo tanks.

(1) Design—pressure vessel-type tanks.

(i) Plans which show tank configuration, scantlings, and details of weld joints which specify type and extent of stress relief and nondestructive testing.

(ii) Details of all nozzles, domes, attachments, and penetrations into tanks.

(iii) Calculations which show the tanks meet Coast Guard requirements with regard to design, stresses, reinforcement, etc.

(iv) Calculations which show the effect of hull deflection on the stress level in any tanks supported by three or more saddles.

(2) Welding procedure.

(i) Procedure qualification, including test results.

(ii) Classification society certification that all welders have passed to society's performance qualification test.

(iii) Production test schedule.

(iv) Results of production testing.

(c) Venting (tanks and holds).

(1) Description of safety relief valves including design, materials, etc., and the results of a flow test indicating the actual capacity of a prototype valve.

(2) Description of means of pressure control or ventilation of hold spaces.

(d) Cargo handling system.

(1) Materials and components.

(i) Cargo pumps.

(ii) Translated copies of specifications for all grades of material used for piping, valves, fittings, flanges, bolting, etc. Copies of specifications for materials conforming to American Society for Testing and Materials (ASTM) or American Bureau of Shipping (ABS) standards need not be submitted.

(iii) Plans which show the installation of insulating materials for the cargo handling and containment systems (identify the composition of the materials).

5. For vessels intended to carry cargoes listed in this annex which reference paragraph 5, the owner or owner's representative must submit:

(a) Cargo handling system.

(1) Remotely operated valve actuation diagram, including means of actuation and source of power.

(2) Description of inert gas system and details of automatic controls.

(3) Arrangement for emergency discharge of cargo from tanks.

(b) If applicable, arrangement drawings and materials lists of installations for burning LNG boiloff in the propulsion boilers or engines.

6. For vessels intended to carry cargoes listed in this annex which reference paragraph 6, the owner or owner's representative must submit:

(a) Sections in way of cargo holds.

NOTE.—These drawings should show the distribution of various grades of steel in the hull structure and secondary barrier. The steel distribution should be clearly shown by contrasting color or by other easily visible means. (Not normally required for ships with full pressure vessel cargo tanks.)

(b) Base materials.

(1) Mill certificates or classification society certificates which show the chemistry and the mechanical properties including impact testing for all base materials used in actual construction of cargo tanks, secondary barrier, and contiguous hull structure.

(c) Cargo tanks.

(1) Design—gravity tanks.

(i) Proposed prototype test program for tank designs which are not structurally self-supporting.

(ii) Plans which show the scantlings approved by the classification society.

(iii) Extent of nondestructive testing.

(iv) Details of cargo tank supports.

(d) Cargo handling system.

(1) Materials and components.

(i) Expansion joints, including cyclic test data.

(ii) Process pressure vessels (see item 4b (1)).

(iii) Mill certificates or classification society certificates which show the chemistry and the mechanical properties including impact testing for all such material used in actual construction.

(iv) Pipe welding procedures (procedure and welder qualification).

(v) Details of pipe scantlings, flange details, weld joint details nondestructive testing, and post weld heat treatment.

(2) Method of removing water or leaked cargo from secondary barrier or hold space.

7. For vessels intended to carry cargoes listed in this annex which reference paragraph 7, the owner, or the owner's representative, must submit:

(a) General arrangement drawings with the hazardous areas indicated. The drawing must show the location of all electrical equipment, gas locks, and gas tight seals within the hazardous areas.

(b) A list of all electrical equipment installed in hazardous locations. This list must correspond to the general arrangement drawing and shall give the following information for each piece of equipment:

(1) Location;

(2) Whether intrinsically safe or explosion-proof;

(3) Manufacturer and manufacturer's model number;

(c) Details of shaft seals for gas tight bulkhead penetrations.

(d) Details of ventilation fans in hazardous locations.

(e) From the cognizant classification society, in triplicate, certification that the following items are in accordance with the society's rules and regulations:

(1) Certification that the equipment installed in the hazardous areas is explosionproof or intrinsically safe and is suitable for use with the intended cargoes. This should include explosionproof cable seal fittings.

NOTE.—For certain hazardous locations, such as cargo pumprooms, intrinsically safe equipment only is acceptable, except for explosionproof lighting.

(2) Certification that the electrical installation in hazardous locations is in accordance with approved plans and has been inspected by their representative and is satisfactory.

(3) Certification that all ventilation fans for use in hazardous locations are of the nonsparking type.

(4) Certification that seals for gastight bulkhead penetrations are suitable for the intended service.

(5) Certification that the arrangement of gaslocks used to limit the extent of hazardous locations is acceptable.

8. For vessels intended to carry cargoes listed in this annex which reference paragraph 8, the owner, or owner's representative, must submit:

(a) A description of gas detection system instrumentation and alarms, including a general arrangement drawing which shows the locations of all sensing points.

9. For vessels intended to carry cargoes listed in this annex which reference paragraph 9, the owner, or owner's representative must submit:

(a) Translated copies of specifications for all grades of material used for cargo tanks, piping, valves, flanges, bolting, and other appurtenances which may come into contact with the cargo. Copies of specifications for materials conforming to American Society for Testing and Materials (ASTM) or American Bureau of Shipping (ABS) standards need not be submitted.

10. For vessels intended to carry cargoes listed in this annex which reference paragraph 10, the owner or owner's representative, must submit:

(a) Cargo handling system.

(1) Translated copies of specifications for all grades of material used for piping, valves, fittings, flanges, bolting, etc. Copies of specification for materials conforming to American Society for Testing and Materials (ASTM) or American Bureau of Shipping (ABS) standards need not be submitted.

(2) Details of pipe scantlings, flange details, weld joint details, nondestructive testing, and post weld heat treatment.

11. For vessels intended to carry cargoes listed in this annex which reference paragraph 11, the owner or owner's representative, must submit:

(a) Cargo piping and venting plans which clearly indicate piping segregation. The use of spectacle flanges, blind flanges, or spool pieces is not acceptable.

(b) Details of cargo tank overfill protection.

12. For vessels intended to carry cargoes listed in this annex which reference paragraph 12, the owner or owner's representative, must submit:

(a) Translated copies of specifications for all grades of material used for tanks, piping, valves, fittings, flanges, bolting, etc. Copies of specifications for materials conforming to American Society for Testing and Materials (ASTM) or American Bureau of Shipping (ABS) standards need not be submitted.

(b) Specifications and plans of the installations and composition of tank linings and piping corrosion protection.

13. For vessels intended to carry cargoes listed in this annex which reference paragraph 13, the owner, or owner's representative, must submit:

(a) A description of the inert gas system and details of the automatic controls.

14. For vessels intended to carry cargoes listed in this annex which reference paragraph 14, the owner, or owner's representative, must submit:

(a) General arrangement drawings with the hazardous areas indicated. This drawing should show the location of all mechinical equipment and electrical instrumentation and devices within the hazardous areas.

(b) A list of all electrical instrumentation and devices and all mechanical equipment installed in the hazardous locations. This list must correspond to the general arrangement drawing and should give the following information for each piece of equipment:

(1) Location;

(2) Manufacturer and manufacturer's model number.

(c) Certification by the classification society or a recognized testing organization that each electrical device within the hazardous area has been tested ac intrinsically safe in an explosive atmosphere of the specific cargo.

(d) Certification by the classification society that no equipment with a normal operating temperature above 115° F has been installed in the hazardous area.

ANNEX B

BULK LIQUID CARGOES NOT CONSIDERED TO INVOLVE POTENTIAL UNUSUAL OPERATING RISKS TO LIFE AND PROPERTY IN U.S. PORTS

Vessels transporting the following commodities in bulk do not require plan review and examination solely by reason of the cargo carried:

Acetone.
Amyl acetate.
Amyl alcohol.
Asphalt.
Butyl acetate (iso-, n-, sec-).
Butyl alcohol (iso-, n-, sec-, tert-).
Butyl benzyl phthalate.
Butylene glycol.
Butyric acid (n-).
Corn syrup.
Creosote, coal tar.
Cumene.
Cyclohexane.
Cyclohexyl alcohol.
p-Cymene.
Decyl alcohol (iso-, n-).
Decaldehyde (iso-, n-).
Dextrose solution.
Diacetone alcohol.
Dicyclopentadiene.
Diethylbenzene.
Diethylene glycol.
Diethylene glycol monobutyl ether.
Diethylene glycol monoethyl ether.
Diisobutyl carbinol.
Diisobutylene.
Diisobutyl ketone.
Dioctyl phthalate.
Dipropylene glycol.
Dodecyl benzene.
Ethoxytriglycol.
Ethyl acetate.
Ethyl alcohol.
Ethyl benzene.
2-ethylbutyl alcohol.
Ethylene glycol.
Ethylene glycol monobutyl ether.
Ethylene glycol monethyl ether.
Ethylene glycol monoethyl ether acetate.
Ethylene glycol monomethyl ether.
2-ethylhexyl acrylate (inhibited).
2-ethylhexyl alcohol.
Ethylhexyl tallate.
Furfuryl alcohol.
Gasolines:
  Casinghead (natural).
  Automotive (containing not over 4.23 grams lead per gallon).
Glycerine.
Glycol diacetate.
Heptane (n-).
Hexane (iso-, n-).
Hexylene glycol.
Isooctyl alcohol.
Isooctylaldehyde.
Isophorone.
Isopropyl ether.
Jet fuels:
  JP-1 (kerosene).
  JP-3.
  JP-4.
  JP-5 (kerosene, heavy).
Kerosene.
Mesityl oxide.
Methyl acetate.
Methyl alcohol.
Methyl amyl acetate.
Methyl butyraldehyde.
Methyl ethyl ketone.
Methyl formal.
Methyl isobutyl ketone.
Mineral spirits.
Molasses, all.
Naphtha:
  Coal tar.
  Solvent.
  Stoddard solvent.
  VM&P (75% naphtha).
Naphthalene, molten.
Nonane.
Nonene.
Nonylphenol.
Oils:
  Crude oil.
  Diesel oil.
  Fuel oils:
    No. 1 (kerosene).
    No. 1-D.
    No. 2.
    No. 2-D.
    No. 4.
    No. 5.
    No. 6.
  Edible oils, including:
    Castor.
    Cottonseed.
    Olive.
    Peanut.
    Soya bean.
    Vegetable.
  Miscellaneous oils, including:
    Absorption.
    Coal tar.
    Lubricating.
    Mineral.
    Mineral seal.
    Motor.
    Neatsfoot.
    Penetrating.
    Range.
    Resin.
    Rosin.
  Mineral oils, including:
    Sperm.
    Spindle.
    Spray.
    Tall.
    Tanner's.
    Turbine.
Petrolatum.
Petroleum naphtha.
Polybutene.
Polypropylene glycol methyl ether.

Propylene tetramer (dodecene).
Propionaldehyde.
Propyl acetate (iso-, n-).
Propyl alcohol (iso-, n-).
Propylene glycol.
Sorbitol.
Tallow.
Tetraethylene glycol.
Tetrahydronaphthalene.
Toluene.
1,2,4-trichlorobenzene.
Tridecyl alcohol.
Triethyl benzene.
Triethylene glycol.
Turpentine.
Valeraldehyde.
Waxes:
  Carnauba.
  Paraffin.
Xylene (meta-, ortho-, para-).

(R.S. 4472, as amended, sec. 201, 86 Stat. 424, sec. 6(b)(1), 80 Stat. 937; 46 U.S.C. 170, 391a, 49 U.S.C. 1655(b)(1); 49 CFR 1.46 (b) and (o)(4).)

Effective date.—The requirements for the carriage of cargoes that required a letter of compliance in Navigation and Vessel Circular No. 13–65, dated September 30, 1965, are effective on June 15, 1973. All other requirements are effective on January 1, 1974.

Dated June 7, 1973.

T. R. SARGENT,
Vice Admiral, U.S. Coast Guard,
Acting Commandant.

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